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10/532,181	05/19/2005	Christian Pfau	WMH-0738	6200

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EXAMINER	
TAOUSAKIS, ALEXANDER P	
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3726	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,181	PFAU ET AL.	
	Examiner	Art Unit	
	ALEXANDER P. TAOUSAKIS	3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/21/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 24-27, 29-34, 36-37, 40-42, 44 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Flick (US 7,134,175).

24. Flick teaches a method of fastening a tool (26) in a tool chuck *(see Figure 3 and Abstract)*, which comprises the steps of:

determining by measurement an actual position of the tool *(see Abstract lines 3-4)*;

inserting the tool into the tool chuck (34) *(see column 3 lines 57-58)*;

positioning the tool in the tool chuck (34) on a basis of the actual position previously determined *(see column 3 lines 60-65)*;

shrink fitting the tool in place *(see column 4 lines 56-57)*; and

determining an actual position of the tool in the tool chuck (34) after the shrink fitting step *(see column 3 lines 35-45, where the measurement device of Flick continuously measures the actual position of the tool chuck 34, i.e. it measures the position before, during, and after the shrink fitting step)*.

25. Flick teaches the method according the claim 24, which further comprises monitoring the actual position of the tool during the inserting step for inserting the tool (26) into the tool chuck (34) *(see column 3 lines 35-45, where it discloses that the measuring device continuously measure the position of the tool and tool holder)*.

26. Flick teaches the method according to claim 24, which further comprises during the shrink fitting step, holding the tool (26) with a tool gripper (34) which also held the tool (26) during the measurement *(see column 4 lines 55-57)*.

27. Flick teaches the method according to claim 24, which further comprises fastening the tool chuck in a spindle during the shrink fitting step and not removing the tool chuck (34) from the spindle (32) after the actual position of the tool in the tool chuck (34) has been determined *(see Figure 3, column 4 lines 58-63, where it discloses the use of the spindle and column 3 lines 35-45, where it discloses continuously measuring the position of the tool 36)*.

29. Flick teaches the method according the claim 24,which further comprises positioning the tool (26) in the tool chuck (34) at a distance from a desired position corresponding to a correction size *(see column 4 lines 40-47, which discloses positioning the tool chuck (34) in the downward position to use insertion of the tool 26)*.

30. Flick teaches the method according to claim 24, which further comprises writing the actual position to a data carrier connected to the tool chuck, after the actual position has been determined *(see Figure 1 and column 3 lines 25-45)*.

31. Flick teaches the method according to claim 24, which further comprises determining a traverse path for moving the tool from the actual position determined into the tool chuck (34) from the actual position *(see Figure 2 and column 4 lines 9-17)*.

32. Flick teaches the method according the claim 24, which further comprises determining the actual position in a non-contact manner *(see column 3 lines 23-27, where it discloses an optical viewer 24 to measure the position of the tool 26 and tool chuck 34)*.

33. Flick teaches the method according to claim 24, which further comprises determining the actual position in regards to an element of the tool (26) selected from the group consisting of a cutting edge, a corner, an edge and a tip *(see column 4 line 43, where it discloses the cutting being a cutting tool, and therefore having a cutting edge)*.

34. Flick teaches the method according to claim 24, which further comprises defining the actual position of the tool (26) with regard to a reference point on the tool chuck (34) *(see column 3 lines 37-41)*.

36. Flick teaches the method according to claim 24, which further comprises holding the tool with a tool gripper (34) during the measurement *(see column 4 lines 40-41 and column 3 lines 35-45, where it discloses continuously measuring the position of the tool 26)*.

37. Flick teaches the method according to claim 36, which further comprises holding the tool (26), for the measurement, concentrically to a rotation axis of a spindle (32) *(see Figure 3)*.

40. Flick teaches the method according to claim 24, which further comprises detecting an unintentional movement of the tool during the insertion step *(see column 3 lines 35-45, which discloses a continuous measurement)*.

41. Flick teaches the method according to claim 24, which further comprises determining the actual position immediately after the shrink fitting step *(see column 3 lines 35-45, which discloses a continuous measurement)*.

42. Flick teaches the method according to claim 41, which further comprises comparing the actual position determined immediately after the shrink fitting step with a subsequently determined actual position after the tool chuck has cooled down *(see column 3 lines 37-42)*.

44. Flick teaches the method according to claim 24, which further comprises mounting the tool chuck (34) in a spindle (32) rotatable about a rotation axis *(see column 4 lines 58-60)*.

47. Flick teaches the method according to claim 24, which further comprises determining the actual position of the tool (26) in a direction of a longitudinal axis of the tool *(see column 3 lines 35-45)*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flick (US 7,134,175) in view of Freyermuth et al (US 6,629,480)

39. Flick teaches the method according to claim 24, but fails to teach determining the actual position in a radial direction relative to a tool axis after the shrink fitting step.

Freyermuth et al teaches measuring the position of a tool in both the longitudinal and radial direction *(see column 2 lines 14-19)*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to measure the tool (26) in the radial direction because it will ensure proper alignment and fitment of the tool (26) in the tool chuck (34).

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flick (US 7,134,175) in view of Haimer (US 7,062,847)

43. Flick teaches the method according to claim 24, which further comprises heating the tool chuck (34) during the shrink fitting step *(see column 4 lines 56-57)*.

Flick fails to teach monitoring the temperature of the tool chuck (34) by a sensor.

Haimer teaches monitoring the temperature of a tool (10) and tool chuck (12) with a temperature sensor (114) *(see Figure 1 and column 23 lines 49-63)*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to monitor the temperature of the tool chuck (34) and tool (26) of Flick, using the temperature sensor of Haimer, because it will minimize overheating and produce a more precise and reliable connection.

Claims 24-26, 28-36, 38, 40-42 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haimer et al (US 6,861,625) in view of Flick (US 7,134,175).

24. Haimer et al teach a method of fastening a tool (5) in a tool chuck (3) *(see Figure 1)*, which comprises the steps of:

positioning and inserting the tool into the tool chuck (3) *(see column 7 lines 10-12)*; and shrink fitting the tool in place *(see column 7 lines 9-14)*.

Haimer et al fails to teach determining by measurement an actual position of the tool and determining an actual position of the tool in the tool chuck (3) after the shrink fitting step.

Flick teaches a measurement device (24) for determining by measurement an actual position of the tool in a continuous manner *(see column 3 lines 35-45)*; positioning the tool in the tool chuck (34) on a basis of the actual position previously determined *(see column 3 lines 60-65)*; and determining an actual position of the tool in the tool chuck (34) after the shrink fitting step *(see column 3 lines 35-45, where the measurement device of Flick continuously measures the actual position of the tool chuck 34, i.e. it measures the position before, during, and after the shrink fitting step)*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the measurement device of Flick for measuring the position of the tool (5) and tool chuck (3) of Haimer et al, to enhance the fitment and precision of the tool (5) into the tool chuck (3).

25. Haimer et al/Flick teach the method according the claim 24, which further comprises monitoring the actual position of the tool during the inserting step for inserting the tool (5) into the tool chuck (3) *(see* Flick *column 3 lines 35-45, where it discloses that the measuring device continuously measure the position of the tool and tool holder)*.

26. Haimer et al/Flick teach the method according to claim 24, which further comprises during the shrink fitting step, holding the tool (5) with a tool gripper (3) which also held the tool (5) during the measurement *(see* Flick *column 4 lines 55-57)*.

28. Haimer et al/Flick teach the method according to claim 24, which further comprises:

shrinking a number of tools (5) in place in a respectively associated tool chuck (3) *(see* Haimer et al *Figure 1)*;

depositing the tool with the tool chuck in a loading and unloading magazine (23) *(see* Haimer et al *Figure 1)*;

determining the actual position of the tools (5) in the tool chucks (3) *(see* Flick *column 3 lines 35-45)*.

29. Haimer et al/Flick teach the method according the claim 24,which further comprises positioning the tool (5) in the tool chuck (34) at a distance from a desired position corresponding to a correction size *(see* Flick *column 4 lines 40-47, which discloses positioning the tool chuck (34) in the downward position to use insertion of the tool 26)*.

30. Haimer et al/Flick teach the method according to claim 24, which further comprises writing the actual position to a data carrier connected to the tool chuck (3), after the actual position has been determined *(see* Flick *Figure 1 and column 3 lines 25-45)*.

31. Haimer et al/Flick teach the method according to claim 24, which further comprises determining a traverse path for moving the tool from the actual position determined into the tool chuck (3) from the actual position *(see* Flick *Figure 2 and column 4 lines 9-17)*.

32. Haimer et al/Flick teach the method according the claim 24, which further comprises determining the actual position in a non-contact manner *(see* Flick *column 3 lines 23-27, where it discloses an optical viewer 24 to measure the position of the tool 26 and tool chuck 34)*.

33. Haimer et al/Flick teach the method according to claim 24, which further comprises determining the actual position in regards to an element of the tool (5) selected from the group consisting of a cutting edge, a corner, an edge and a tip *(see* Flick *column 4 line 43, where it discloses the cutting being a cutting tool, and therefore having a cutting edge)*.

34. Haimer et al/Flick teach the method according to claim 24, which further comprises defining the actual position of the tool with regard to a reference point on the tool chuck *(see* Flick *column 3 lines 37-41)*.

35. Haimer et al/Flick teach the method according to claim 24, which further comprises rotating the tool *(see Haimer et al Figure 1, where the turret plate 24 rotates the tool to different stations)*, before determination of the actual position about a rotation axis outside the tool chuck in front of an optical measuring system *(see Flick column 3 lines 37-41, and note that measuring takes place in a continuous manner, and therefore a measurement is taken after the tool is rotated to the cooling collar 53)*.

36. Haimer et al/Flick teach the method according to claim 24, which further comprises holding the tool (5) with a tool gripper (3) during the measurement *(see* Flick *column 4 lines 40-41 and column 3 lines 35-45, where it discloses continuously measuring the position of the tool 26)*.

38. Haimer et al/Flick teach the method according to claim 36, which further comprises using the tool gripper (3) to rotate the tool about its rotation axis *(see Haimer et al column 8 lines 41-46)*.

40. Haimer et al/Flick teach the method according to claim 24, which further comprises detecting an unintentional movement of the tool (5) during the insertion step *(see* Flick *column 3 lines 35-45, which discloses a continuous measurement)*.

41. Haimer et al/Flick teach the method according to claim 24, which further comprises determining the actual position immediately after the shrink fitting step *(see* Flick *column 3 lines 35-45, which discloses a continuous measurement)*.

42. Haimer et al/Flick teach the method according to claim 41, which further comprises comparing the actual position determined immediately after the shrink fitting step with a subsequently determined actual position after the tool chuck has cooled down *(see* Flick *column 3 lines 37-42)*.

45. Haimer et al/Flick teach the method according to claim 28, which further comprises configuring the loading and unloading magazine (23) to be rotatable about a rotation axis *(see Haimer et al Figure 1, where the turret 24 rotates the magazine 23)*.

46. Haimer et al/Flick teach the method according to claim 28, which further comprises positioning the tool (5) in fron of or in a cooling station by rotation of the loading and unloading magazine (23) *(see Haimer et al Figure 1 and column 8 lines 41-46)*.

47. Haimer et al/Flick teach the method according to claim 24, which further comprises determining the actual position of the tool (26) in a direction of a longitudinal axis of the tool *(see* Flick *column 3 lines 35-45)*.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER P. TAOUSAKIS whose telephone number is (571)272-3497. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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